JETIR.ORG ISSN: 2349-5162 | ESTD Year : 2014 | Monthly Issue
JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)
An International Scholarly Open Access, Peer-reviewed, Refereed Journal

PREVALENCE OF DEPRESSION AND ITS ASSOCIATED FACTORS AMONG RURAL ADOLESCENTS IN KHULNA DIVISION, SOUTHWEST BANGLADESH

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ABSTRACT

To assess the prevalence of depression and its associated factors among rural adolescent descriptive cross-sectional study was conducted on 254 purposively selected students between standards VI to IX in Khulna division from October 10 -14, 2023 following semi-structered questionnaire and PHQ-9 scale. Around 71.3% of the participants was of age between 13-15 years and 52.8% were female and 47.2% were male. Where 96.9% follows Islam and 34.3% were in class vi. About 53.9.% of the participants mother's education were upto secondary level and 31.9% respondent's father occupation was Business and 33.9% of respondents monthly family income was around 10k – 15k Bdt. Majority of repondents 50.4% have 2 sibling and 76.4% were in nuclear family. Most of the respondents 69.7% were in lower middle class family. Most of the respondent 86.6% used mobile phone among them 72.4% used smart phone. It was observed that 43.7% of the participants used mobile phone 1hour per day and 43.7% browsed Youtube regularly. Most of the respondents 71.7% played outdoor games like balikhela, danguli khela, dariyabanda, golap-togor, gollachut, Ha-du-du, Cock fight, cricket, running, football match. Majority 71.7% had history of sleeping 7-9 hours per day. Among all respondents 92.9% were non-smoker. According to Patient Health Questionnaire- 9 (PHQ-9) scale Positive depression indicates - moderate to severe depression where (PHQ-9 is ≥10). Most of the respondents 18.1% are suffering from Positive depression and 81.9% are suffering from Negative depression. and among all respondent around 40.55% showed difficulty his/her daily work, take care of things at home, or get along with other people. Maximum number of cases (positive depression= 5.51%) with positive depression found among studying in class 8 .The depression is highly associated with age between 13-15 years old (x^2 =29.330 & p<0.000), associated with class standard (x^2=28.544 & p<0.005). This study finds that depression is more in family income 10000-15000 bdt (x^2=53.473 & p<0.000). Depression is highly associated with sleeping hours 7-9 hours (x^2=19.373 & p<0.005), and smoking habit (x^2=14.793 & p<0.005), browsing site Youtube (x^2=28.604 & p<0.005). Good health & well- being is one of the mentioned goals in the 17 SDG's by the

UN in 2015. The official wording is To ensure healthy lives & Promote well being for at all ages. These goals have to be completed with in the year 2030. Thats why the government is also concern about the mental health since it is the young generation which is affecting leading them toward co-morbid conditions & self-harming tendency. According to WHO the fourth leading cause of suicide among adolescents is mental health disorder mostly anxiety and depression. Globally, adolescent mental health accounts for 13% of the disease burden (WHO, 2022). This study shows that depression is an alarming issues for the rural adolescents in Khulna Division and there are some associated factors regarding this condition which may lead to progressive mental health disorder.

Keywords: Adolescent, PHQ-9, Depression.

1. INTRODUCTION

According to WHO Adolescence is defined as the 2nd decade- of life (10-19 years age)- is a time when significant physical, psychological & social changes occurs. Mental health is a concerning topic worldwide affecting mainly adolescents. Mental health disorder includes- anxiety, depression, attention deficit hyperactivity disorder (ADHD),disruptive behavior and dissociative disorder. Good health & well- being is one of the mentioned goals in the 17 SDG's by the UN in 2015. The official wording is To ensure healthy lives & Promote well being for at all ages. These goals have to be completed with in the year 2030. Thats why the government is also concern about the mental health since it is the young generation which is affecting leading them toward co-morbid conditions & self-harming tendency. According to WHO the fourth leading cause of suicide among adolescents is mental health disorder mostly anxiety and depression. Globally, adolescent mental health accounts for 13% of the disease burden. (WHO, 2022).Globally, it is estimated that 1 in 7 (14%) 10–19 year-olds experience mental health conditions yet these remain largely unrecognized and untreated. Multiple factors affect mental health. Factors that can contribute to stress during adolescence include exposure to adversity, pressure to conform with peers and exploration of identity. Media influence and gender norms can exacerbate the disparity between an adolescent's lived reality and their perceptions or aspirations for the future. Other important determinants include the quality of their home life and relationships with peers. Violence (especially sexual violence and bullying), harsh parenting and severe and socioeconomic problems are recognized risks to mental health. (WHO, 2021).

METHODOLOGY

1.1 Study type and study area

A descriptive cross-sectional study was conducted from at Pulerhat M. L. High Schooland College, Jashore on 10 th October 2023 to 12 th October 2023.

1.2 Sample size and sampling

The researcher used purposive sampling to select respondents from the study area. It was possible to collect data from 254 respondents during the scheduled period of data collection. The semi-structured questionnaires and PHQ-9 were administered among the respondents.

2.3 Research Instrument

A semi Structured questionnaire was used for sociodemographic data collection. Checklist for PHQ-9 (Patient Health Questionnaire- nine) question used for scalling of Depression.

2.4 Data collection and analysis

Permission of Principal of at Pulerhat M. L. High School and College, Jashore was taken. Informed consent was taken from the respondents after explaining the study protocol. Data were collected by Principal Investigator through face to face interview.

2.5 Data Quality Control

After developing a Questionnaire, it was checked, modified and finalized. A face to face interview was carried out and questionnaire filled up by Principal Investigator himself. In addition at the end of each interview and filling up of each questionnaire, they were checked for incompleteness. Data were cross checked for completeness, consistency and relevaancy. An appropriate measure was taken in case of inconsistency and incorrectness.

2.6 Data Analysis

After collection data were verified and edited for its consistency. The data were entered, coded, cleaned, and organized. After processing of data, it is analyzed by using computer software package for social science (SPSS).

ILLUSTRATIONS

Table 1: Socio-demographic characteristics

Age interval	Percentage of respondents
10-12	71.3%
13-15	21.7%
16-18	7.0%
Total	**100%**
Gender	
Male	120 (47.2%)
Female	134 (52.8%)
Total	**254 (100%)**
Religion	
Islam	246 (96.9%)
Hindu	8 (3.1%)
Total	**254 (100%)**
Educational Qualification in class	
Six	87 (34.3%)
Seven	69 (27.2%)
Eight	50 (19.7%)
Nine	48 (18.8%)
Total	**254 (100%)**
Number of siblings	
1	33 (13%)
2	128 (50.4%)
3	71 (28%)
4	16 (6.3%)
>4	6 (2.4%)
Total	**254 (100%)**
Types of family	
Nuclear	194 (76.4%)
Joint	60 (23.6%)
Total	**254 (100%)**
Mother Literacy Rates	
Illiterate	14 (5.5%)
Informal Education	16 (6.3%)
Primary Education	52 (20.5%)
Secondary Education	137 (53.9%)
Higher Secondary Education	22 (8.7%)
Honor's & Above	13 (5.1%)
Total	**254 (100%)**
Parents occupation	
Businessman	81 (31.9%)
Service Holder	24 (9.4%)
Farmer	19 (7.5%)
Day Laborer	45 (17.7%)
Late	5 (2.0%)
Others (Driver, shop keeper, contractor)	80 (31.5%)
Total	**254 (100%)**

Family Status	
Lower Class	50 (19.7%)
Lower Middle	177 (69.7%)
Middle Class	17 (6.7%)
Upper Middle Class	9 (3.5%)
Higher Class	1 (.4%)
Total	**254 (100%)**

The study focuses on adolescent of class six-nine at at Pulerhat M. L. High School and College, Jashore in Khulna Division. The result showed that Among 254 respondents, the mean age of the respondents was 13.5 years. Participants were 52.8% female and 47.2% male. Another study of Bangladesh, the number were nearly similar as there were the age ranging from 12-17 years and more than half about 51.6% of the study participants were female and 48.4 % were male (Afifa Anjum, *et al.*,2022). From another study, participants were 55.6% male and 44.4% female and their mean age was 15.71 years, ranging from 13-18 years (Md. Saiful Islam, *et al.*, 2021). From socio-demographic and socio-economic characteristics most of the fathers of the respondents were businessman, which is 31.9%. More than half about 53.9% of the mother's literacy rate was secondary education. A large number of participants belong from lower middle class family, which was about 69.7% and about 76.4% was from nuclear family. Another study of Bangladesh, nearly half (43.3%) of the fathers of the respondents were service holders and most of them came from small families & mother's level of education was secondary/higher secondary education which was about 45.76% (Afifa Anjum, *et al.*, 2022). There was a study conduct in Bangladesh, where most of the participants belong from upper class family which is opposite to our study (Md. Saiful Islam, *et al.*,2021). These characteristics are strongly related with mental health of the children.

Table 2: Uses of Electronic Device and Personal Habit

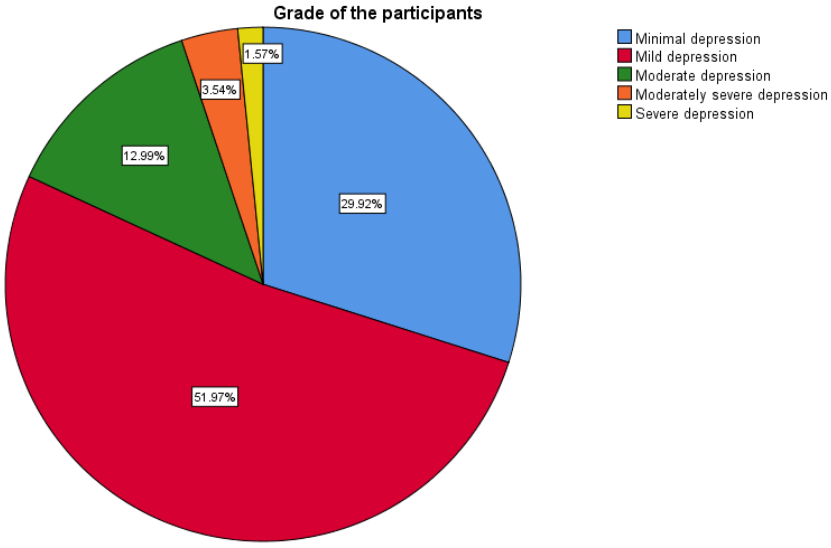
Uses of Mobile Phone	**Respondent with Percentage**
Yes	220 (86.6%)
No	34 (13.4%)
Total	**254 (100%)**
Types of Mobile Phone	**Respondent**
Smart phone	184 (72.4%)
Button Phone	36 (14.2%)
No	34 (13.4%)
Total	**350 (100%)**
Status of Electric Device	
No Device	64.2%
Laptop Computer	10.6%
Desktop Computer	5.1%
Other Device (palmtop and tabloid computer)	20.1%
Total	**254 (100%)**
Duration of use in Hour	
0	43 (16.9%)
1	111 (43.7%)
2	49 (19.3%)
3	50 (19.7%)

4	0 (0%)
5	1 (.4%)
Total	**254 (100%)**
Site of Internet Browsing	
Youtube	43.7%
Facebook	24%
Online Business	0.4%
Other site	7.1%
No Browsing	24.8%
Total	**254 (100%)**
Playing Sports	
Yes	182 (71.7%)
No	72 (28.3%)
Total	**254 (100%)**
Sleeping in Hours	
4-6	48 (18.9%)
7-9	182 (71.7%)
10-12	24 (9.4%)
Total	**254 (100%)**
Smoking Habit	
Yes	18 (7.1%)
No	236 (92.9%)
Total	**254 (100%)**

In respect of mobile phone use at home, it was revealed that 273 (78%) participants had smart android mobile phone. Another descriptive cross sectional study was conducted in Chennai India observed that, Internet Addiction was more common in the students (80%) who had android mobile phone with internet accessibility. (Simcharoen *et al.,* 2018). Most of the respondent 219 (62.6%) had other electronic device like laptop computer, desktop computer, palmtop and tabloid computer. Another descriptive cross sectional study was conducted in China observed that, Internet addiction was more common in the students (80%) who had tabloid and palmtop computer. (Kuss *et al.,* 2014). On the basis of duration of using electronic device, it was revealed that 175 (50%) respondents use electronic device for an hour per day and mostly 187 (53.4%) browsed Youtube regularly. Another study conducted in South India observed that internet addiction was high (30%) among the students who browsed Youtube. (Grover *et al., 2014).*

According to personal habit 210 (62.6%) had history of playing different types of outdoor games like balikhela, danguli khela, dsriyabanda, golap-togor, gollachut, ha-du-du, cock fight, cricket, running, football match. Higher participant (67.4%) had history of sleeping for 7-9 hours/day.

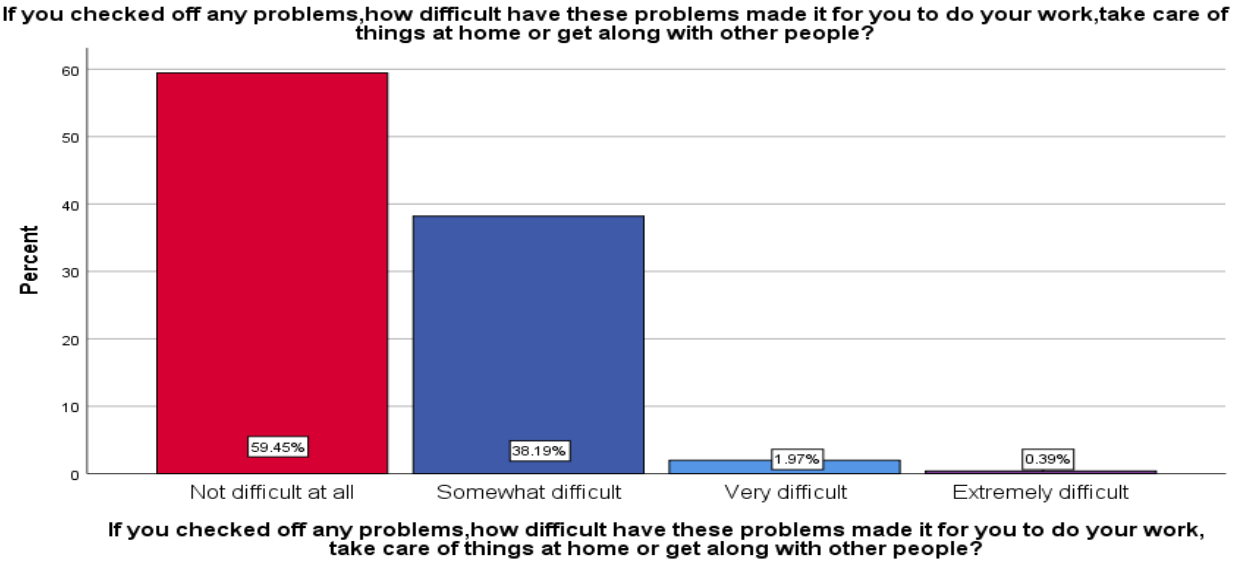
Figure 1: Level of Depression



The pie shows majority of the respondents (rural adolescents) about 29.92% are suffering from minimal depression, 51.97% are suffering from mild depression, 12.99% are suffering from moderate depression, 3.54% are from moderately severe depression and only 1.57% is severely depressed.

Summation of moderate depression, moderately severe depression and severe depression about 18.1% is suffering from Positive depression where 81.9% are suffering from Negative depression. This prevalence is lower than that (8.4%) reported in another study conducted upon 563 students, age 13-18 years at selected schools in Dhaka city. From this study about 26.5% experienced moderate to severe depression (Md. Saiful Islam, *et al.*,2021). Another study conducted upon 445 students was assessed (male-54.4%, female 45.6%). About 36% screened positive for depression (mild depression-17%, severe depression19%) and 28% screened positive for severe anxiety in Sri Lanka (Chaturaka Rodrigo, .,2010). A study was conducted among 200 students in rural areas of Eastern Uttar Pradesh, India shows the prevalence of depression was found to be 14.5% which is lower (3.6%) than our study (Shailendra Kumar Mishra, *et al.*, 2018). On another study, prevalence of anxiety and depression among rural adolescents in Australia (24.9%) which was conduct among 7650 adolecent (Sushmitha Kasturi, *et al.,* 2023). A study was conducted in Pakistan, about 17.2% participants were indentified to be probable cases of depression which is nearly similar with our study (Amna Khalid, *et al.*, 2018). From a meta-analysis of the worldwide prevalence of mental disorders in children and adolescents was conducted among 27 countries from every world region we found depressive disorder was 2.6% (Guilherme V. Polanczyk, *et al.*, 2015). A much higher prevalence of depressive symptoms was 26.2% which is found from a study conducted among adolescents in Kuching,Malaysia where 320 students was included (Ai Ling Ang, *et al.*, 2018).

Figure 2: Distribution of respondents according to their response about difficulty made his/her to do daily work, take care of things at home, or get along with other people:



The bar chart shows the majority of the respondents 59.45% are not suffering from any difficulty, somewhat difficult is 38.19%, suffering from very difficulty is 1.97%. Only 0.39% among the respondents is facing extremely difficulty in doing works.

Table 4: Association of level of Depression with associated factors

Age of participants	Level of Depression						Df	X^2	P value
	Minimal Depression	Mild Depression	Moderate Depression	Moderately Severe Depression	Severe Depression	Total			
10-12	24	26	04	01	00	55	8	29.330	.000
13-15	49	98	27	04	03	181			
16-18	03	08	02	04	01	18			
Total	**76**	**132**	**33**	**09**	**04**	**254**			
Educational Qualification	**Level of Depression**								
	Minimal Depression	**Mild Depression**	**Moderate Depression**	**Moderately Severe Depression**	**Severe Depression**	**Total**			
Class 6	37	39	09	02	0	87			
Class 7	23	37	06	0	03	69	12	28.544	.005
Class 8	08	28	10	03	01	50			
Class 9	08	28	08	04	0	48			

Total	**76**	**132**	**33**	**09**	**04**	**254**			
Monthly Income	**Level of Depression**								
	Minimal Depression	**Mild Depression**	**Moderate Depression**	**Moderately Severe Depression**	**Severe Depression**	**Total**			
<5000	0	04	06	04	0	14			
5000-10000	10	15	05	02	02	34	16	53.473	.000
10000-15000	31	45	08	01	01	86			
15000-20000	21	35	07	0	0	63			
20000 & above	14	33	07	02	01	57			
Total	**76**	**132**	**33**	**09**	**04**	**254**			
Sleeping Hour	**Level of Depression**								
	Minimal Depression	**Mild Depression**	**Moderate Depression**	**Moderately Severe Depression**	**Severe Depression**	**Total**			
4-6	07	27	07	05	02	48			
7-9	63	89	25	03	02	182	8	19.373	.013
10-12	06	16	01	01	0	24			
Total	**76**	**132**	**33**	**09**	**04**	**254**			
Smoking Habit	**Level of Depression**								
	Minimal Depression	**Mild Depression**	**Moderate Depression**	**Moderately Severe Depression**	**Severe Depression**	**Total**			
Yes	02	11	01	03	01	18	4	14.793	.005
No	74	121	32	06	03	236			
Total	**76**	**132**	**33**	**09**	**04**	**254**			
Browsing Site	**Level of Depression**								
	Minimal Depression	**Mild Depression**	**Moderate Depression**	**Moderately Severe Depression**	**Severe Depression**	**Total**			
YouTube	28	66	11	04	02	111			
Facebook	11	39	08	02	01	61			
Online Business	0	01	0	0	0	01	16	28.604	.027

Other site	07	05	06	0	0	18			
No Browsing	30	21	08	03	01	63			
Total	**76**	**132**	**33**	**09**	**04**	**254**			

Our present study has showed notable significant association between depression and age by chi square test (x 2= 29.330 & P value= 0.000. The analysis reveals that there is an effect of age on depression among rural adolescents. From another study as regression analysis of age associated with depression (P value= 0.001) among adolescents is highly significant (Md. Saiful Islam, *et al*., 2021). From another study conducted in Bangladesh, found that age is highly significant (P value< 0.001) association between depression and smoking habit (Md. Saiful Islam, *et al*., 2021). Children are using internet more nowadays. They are becoming more dependent on internet.
In our study, there is significant association between depression and browsing site of the participants by chi square test (x2= 28.604 & P value= 0.027 {≤0.05 is highly significant}) in another study stated that though there is no direct relationship between social media use and mental health problems, it impinges on the sleep quality and thus triggers mental health problems (Keles B., *et al*.,2019). In another study, association between depression and internet use is significant. (Md. Saiful Islam, *et al*.,2021). which is similar with our current study.

CONCLUSIONS

Nowadays depression is a common problem in rural adolescence. It is related to mental health. To solve this problem following policy should be done. 1. Mental health care should be incorporated into Bangladesh universal health coverage. 2. The National Health Service Reform authorities should build a special section of mental health care service at Upazilla Health Complexes by providing adequate training to physicians 3.The teachers should create friendly relationship with students. So that, students can easily share their problems. 4. The school authorities must give financial support to the students who need it. 5.Need collective efforts and Coalition with NGOs, as well as both private and Government and psychiatric organizations to develop mental health interventions. 6.Government should increase the percent of mental health budget for the expansion of mental health services in rural area. 7. Recognize the risk factors for adolescent depression. 8. Increase Awareness about mental disorders among adolescents. Awareness programmes will contribute to prevent stigma or supervision on mental disorder. 9. The Bangladesh's government should also upgrade the current mental health care system and develop a robust team of mental health care specialist. 10.Information about mental health care should be disseminated by using mass media like TV, radio, newspaper, magazine etc. 11. Awareness should be created about the changes in adolescence period among the adolescent and their parents distributed in collaboration with multisectoral agencies.

ACKNOWLEDGEMENT

I am grateful to the students for their assistance with data collection. I'd like to express my heartfelt gratitude to the Principal who assisted me eagerly.

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